

Claims

1. Use of a compound comprising at least a structural entity which binds or is an antagonist for interleukin-6 (IL-6) and/or the IL-6 receptor or parts of it, preferably human IL-6 which compound depletes IL-6 from a solution or blocks at least one or more IL-6 functions on cell surfaces or in a solution for manufacturing of a medicament for the treatment or prevention of diseases selected from the group consisting of endothelial injury, destruction, increased risk for endothelial injury or destruction or immune disorders other than rheumatoid arthritis and combinations thereof.
2. Use according to claim 1, wherein the solutions are selected from the group consisting of blood, other body fluids, from tissues and combinations thereof.
3. Use according to claim 1 and/or 2 wherein endothelial injury, destruction, increased risk for endothelial injury or destruction is a disorder selected from the group consisting of stroke, cardiac infarction, avoidance of sudden cardiac death, for burnt offering, for severe surgery or other injuries with severe wound areas, atherosclerosis, with unstable angina, acute liver failure, excessive body weight or obesity, alcoholism, Hormone Replacement Therapy (HRT), for old persons, for smokers or the immune disorder is selected from the group consisting of leukemic persons after irradiation, allograft transplant rejection or xeno-transplant rejection and induction of allo-transplant or xeno-transplant tolerance or inhibition of T cell activation, HIV infections, AIDS, autoimmune diseases, autoimmune liver disease and pancreatitis, diabetes type I or type II, neurodegenerative diseases such as multiple sclerosis, SLE, osteo arthritis, myasthenia gravis, Graves' disease, Hashimoto, psoriasis vulgaris, dilated cardiomyopathy, diabetes mellitus, Morbus Bechterew, inflammatory bile disease, ulcerative colitis, Crohn's disease, idiopathic thrombocytopenia purpura (ITP), aplastic anemia, idiopathic dilated cardiomyopathy (IDM), autoimmune thyroiditis, Goodpastures' disease, diabetic shock, or combinations thereof.

4. The use of any one of the claims 1 to 3 wherein the compound is a polypeptide comprising a binding site to IL-6 and/or the IL-6 receptor, preferably an antibody containing an antigen-binding site to IL-6 and/or the IL-6 receptor.
5. The use of any one of the claims 1 to 4 wherein the compound is a monoclonal antibody containing an antigen-binding site to IL-6 and/or the IL-6 receptor and which preferably has been produced after immunizing vertebrates, most preferably mice, rats, guinea pigs, hamsters, monkeys, pigs, goats, chicken, cows, horses and rabbits.
6. The use of any one of the claims 1 to 5 wherein the compound is a monoclonal antibody containing an antigen-binding site to IL-6 and/or the IL-6 receptor and which has been produced by immunizing immunodeficient mice (as e.g. SCID or nude mice) repopulated with vital immune cells (e.g. of human origin; as e.g. SCID-hu mice) or is a recombinant antibody (as e.g. single chain antibody - scAb or scFv; bispecific antibody, diabody etc.) capable of binding to IL-6 and/or the IL-6 receptor, in particular by containing the antigen-binding site of an antibody which is cross-reactive with IL-6 and/or the IL-6 receptor, preferably a humanized or human antibody.
7. A host cell producing the compound the use of which is claimed in any one of the claims according to any one of the claims 1-6.
8. A recombinant vector comprising the nucleotide sequences encoding the binding molecule fragments the use of which is claimed according to any one of claims 1-6, operably linked to regulating sequences capable of expressing the antibody molecule in a host cell, preferably as a secretory protein.
9. A host comprising the vector according to claim 8.
10. A prokaryotic or eukaryotic cell line producing the antibody the use of which is claimed according to any one of the claims 1-6 and 8.

11. A eukaryotic organism, except man, producing a recombinant antibody the use of which is claimed according to any one of the claims 1-6 and 8.
12. A method of producing a recombinant molecule the use of which is claimed according to any one of the claims 1-6 capable of binding to the IL-6 and/or the IL-6 receptor antigen, comprising the step of culturing a host cell and isolating the binding molecule from the culture medium and/or the producing cell.
13. A method for inhibiting immunologic, inflammatory and/or pathophysiological responses by treating patients with increased IL-6 levels with the IL-6- and/or the IL-6 receptor-binding molecules the use of which is claimed according to claim 1 to 6.
14. A pharmaceutical composition for reducing the IL-6 concentration and/or the unoccupied IL-6 receptor concentration, comprising a therapeutically effective amount of the binding molecule the use of which is claimed according to any one of claims 1-6 and a pharmaceutically acceptable carrier.
15. A medicament comprising at least one composition of matter the use of which is claimed according to any one of the claims 1 to 11 and 14, preferably comprising additionally anti-inflammatory substances which are selected from the group consisting of C-reactive Protein (CRP) antagonists, CRP binding molecules, anti-IL-1 β -molecules, PLA2 antagonists, PLA2 binding molecules, complement blockers or combinations thereof.